

CLAIMS

1. Combination of lactic acid bacteria comprising

- 5 (a) a first component consisting of at least one strain of H<sub>2</sub>O<sub>2</sub>-producing lactic acid bacteria, and  
(b) a second component consisting of at least one strain of arginine-utilizing lactic acid bacteria, wherein component (a) is selected from the group  
10 consisting of the strains of the species *Lactobacillus crispatus*, *Lactobacillus salivarius* and *Lactobacillus casei*, and component (b) is selected from the group consisting of the strains of the species *Lactobacillus brevis*, *Lactobacillus gasseri* and *Lactobacillus fermentum*, provided that when component (a) is  
15 *Lactobacillus casei*, component (b) is not *Lactobacillus gasseri* or *Lactobacillus fermentum* and when component (a) is *Lactobacillus crispatus*, component (b) is not *Lactobacillus fermentum*.

- 20 2. Combination according to Claim 1, in which the strain of lactic acid bacteria in component (b) is the *Lactobacillus brevis* CD2 strain deposited in the DSM - Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH, Braunschweig, Germany, on February  
25 6, 1998 with access number DSM 11988 under the Budapest Treaty, or mutants or derivatives thereof.

3. Combination according to any one of Claims 1-2, in which the ratio of the number of

bacteria in component (a) to the number of bacteria in component (b) is from 1 : 100 to 100 : 1.

4. Combination according to Claim 3, in which the said ratio is from 1 : 5 to 5 : 1.

5 5. Combination according to Claim 4, in which the said ratio is 1 : 1.

6. Combination according to any one of the previous claims in unit dosage units comprising from  $1 \times 10^2$  to  $5 \times 10^{11}$  bacteria of component (a) and from  $1 \times 10^2$  to  $5 \times 10^{11}$  bacteria of component (b).

10 7. Combination according to Claim 6, comprising  $1 \times 10^9$  bacteria of component (a) and  $3 \times 10^9$  bacteria of component (b).

8. Combination according to Claim 6 or 7, in the form of tablets, sucking tablets, sweets, chewing gum, gelatin capsules, pessaries, suppositories and micro-enemas.

15 9. Combination according to any one of Claims 1-5, in the form of pellets, dental creams and gels, denture powders, mouthwashes, dentifrices, sprays, suspensions and ointments.

20 10. Combination according to any one of the previous claims, additionally comprising at least one other strain of lactic acid bacteria, chosen from a group made up of *Lactobacillus acidophilus*, *Lactobacillus buchneri*, *Lactobacillus casei*, *Lactobacillus catenaeforme*, *Lactobacillus cellobiosus*, *Lactobacillus crispatus*, *Lactobacillus curvatus*, *Lactobacillus delbrueckii*, *Lactobacillus jensenii*,

*Lactobacillus leichmannii*, *Lactobacillus minutus*,  
*Lactobacillus plantarum*, *Lactobacillus salivarius*,  
*Lactobacillus brevis*, *Lactobacillus gasser*,  
*Lactobacillus fermentum*, *Bifidobacterium adolescentis*,

5 *Bifidobacterium angulatum*, *Bifidobacterium bifidum*,  
*Bifidobacterium breve*, *Bifidobacterium catenulatum*,  
*Bifidobacterium dentium*, *Bifidobacterium eriksonii*,  
*Bifidobacterium infantis*, *Bifidobacterium longum*,  
*Bifidobacterium plantarum* and *Streptococcus*

10 *thermophilus*, provided that when component (a) is  
*Lactobacillus casei*, said other strain is not  
*Lactobacillus gasser* or *Lactobacillus fermentum* and  
when component (a) is *Lactobacillus crispatus*, said  
other strain is not *Lactobacillus fermentum*.

15 11. Combination according to any one of the  
previous claims, additionally comprising vitamins,  
quaternary ammonium bases, mineral salts, antioxidants  
and anti-plaque agents.

20 12. Use of a combination of lactic acid  
bacteria comprising:

(a) a first component consisting of at least one  
strain of H<sub>2</sub>O<sub>2</sub>-producing lactic acid bacteria; and  
(b) a second component consisting of at least one  
strain of arginine-utilizing lactic acid bacteria,  
25 wherein component (a) is selected from the group  
consisting of the strains of the species *Lactobacillus*  
*crispatus*, *Lactobacillus salivarius* and *Lactobacillus*  
*casei*, and component (b) is selected from the group  
consisting of the strains of the species *Lactobacillus*

*brevis*, *Lactobacillus gasseri* and *Lactobacillus fermentum*, provided that when component (a) is *Lactobacillus casei*, component (b) is not *Lactobacillus gasseri* or *Lactobacillus fermentum* and when component

5 (a) is *Lactobacillus crispatus*, component (b) is not *Lactobacillus fermentum*, for making a food supplement, a hygiene product or a pharmaceutical preparation for the prevention and/or treatment of infections and inflammatory conditions caused by bacteria, viruses or

10 fungi, especially in the mouth, vagina, urethra, nose, eyes and ears.

13. Use according to Claim 12, in which the infections and inflammatory conditions include gingivitis, periodontitis, mucositis and stomatitis

15 caused by drugs and/or physical agents, Behçet's syndrome, diakeratosis of the oral cavity, glossitis, sore throat, sialadenitis, sialolithiasis, pemphigus, Lichen planus, Sjögren's syndrome, vaginosis, vaginitis, urethritis, prostatitis, proctitis, otitis,

20 conjunctivitis, rhinitis, sinusitis, leucoplakia, aphthae, herpes, and infections with *Helicobacter pilori* in the oral cavity.

14. Use according to Claim 12 or 13 for the treatment of the oral cavity as a deodorant,

25 antiinflammatory, anti-carries and/or anti-plaque agent.

15. The composition according to claim 1 or 2, wherein component (a) is *Lactobacillus crispatus* and component (b) is *Lactobacillus brevis*.

16. The composition according to claim 1 or 2, wherein component (a) is *Lactobacillus salivarius* and component (b) is *Lactobacillus brevis*.

5 17. The composition according to claim 1, wherein component (a) is *Lactobacillus salivarius* and component (b) is *Lactobacillus fermentum*.

10 18. The composition according to claims 15-17, wherein the ratio of the number of bacteria in component (a) to the number of bacteria in component (b) is 1:1.